REMARKS

The Official Action mailed April 8, 2003, has been received and its contents carefully noted. Filed concurrently herewith is a *Request for One Month Extension of Time*, which extends the shortened statutory period for response to August 8, 2003. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on December 27, 2000, July 3, 2001, June 18, 2002, June 28, 2002, and December 12, 2002.

Claims 109-140 were pending in the present application. New claims 141-166 have been added to recite additional protection to which the Applicant is entitled. Dependent claims 122-124 have been amended to correct a minor typographical error, specifically to correct claim dependency. Claims 109-166 are now pending in the present application, of which claims 109, 113, 117, 121, 125, 129, 133, 137, 141, 144, 147, 149, 151, 153, 155, 157, 159, 161, 163 and 165 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance.

Paragraph 2 of the Official Action rejects claims 109-116, 121-128 and 133-140 as obvious based on the combination of U.S. Patent No. 5,550,066 to Tang et al. and U.S. Patent No. 5,117,299 to Kondo et al. It further appears that the Official Action relies on U.S. Patent No. 4,705,358 to Yamazaki et al. to support the rejection. However, it is unclear that the Yamazaki reference is officially of record with respect to the obviousness rejection of the claims. In any event, the Applicant respectfully traverses the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2143-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the

teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab,* 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. Specifically, Tang and Kondo do not teach or suggest the feature of independent claims 109, 113, 121, 125, 133 and 137 of the present invention that an insulating layer comprising diamond-like carbon (DLC) is formed over an insulating layer comprising organic resin.

Tang discloses an electroluminescence display comprising a thin film transistor T1, an insulating gate material 42, an insulating layer 52 (layer formed between 41 and ITO) applied over the entire surface of the device, a transparent electrode material 72, and an organic electroluminescent layer 82 in Figs. 1 and 3. The Official Action asserts that the insulating gate material 42 and the insulating layer 52 of Tang correspond with the first and second insulating layers of the present invention, respectively. The Official Action concedes that Kondo "fails to disclose an organic resin based material for the first insulating layer as well as a diamond like carbon (DLC) material for the second insulating layer" (page 3, Paper No. 22). In other words, the Official Action concedes that the insulating gate material 42 of Tang does not comprise organic resin and the insulating layer 52 of Tang does not comprise DLC. The Official Action attempts to apply Kondo in order to fill the gaps in the disclosure of Tang.

Kondo discloses a hard carbon film as an insulator layer used in a metal-insulator-metal (MIM) device (column 4, lines 9-10 and 25-27). The Official Action asserts that it would have been obvious to substitute the insulating gate material 42 of Tang with the hard carbon film of Kondo (page 3, Paper No. 22).

The independent claims of the present invention recite, in part, an electroluminescence device comprising a TFT over a substrate, and a DLC insulating layer over an organic resin insulating layer. At best, Tang teaches a TFT T1 over a substrate 41 and an insulating layer 52 on an insulating gate material 42, both of which are preferably formed of silicon dioxide (column 6, line 63; column 7, lines 17-18). Kondo teaches forming a DLC insulating layer in a MIM device. Tang does not contemplate modifying the silicon dioxide composition of the insulating layer 52 or the insulating gate material 42. Kondo says nothing about forming a DLC insulating layer over an organic resin insulating layer, or use of such a DLC insulating layer in an electroluminescence display device.

In the "Response to Arguments" section of a previous Official Action (page 5, Paper No. 22), the Official Action attempts to argue that the modification to Tang would have somehow been motivated by seeing the "advantage of an DLC film as an insulating layer as shown by Kondo." This argument appears to employ hindsight and lacks an indication why one with ordinary skill in the art would have been motivated to substitute the silicon dioxide insulating layer 52 of Tang with a DLC film used in a MIM device.

In any event, assuming proper motivation to combine Kondo and Tang were shown, the resulting combination would not teach or suggest all the features of the present invention. Specifically, if the configuration of Fig. 1(a) of Kondo is applied to the EL device of Tang, it appears that the Tang insulating layer (52) directly formed on a switching device would necessarily be replaced with the Kondo insulating layer (6) made of a hard carbon film. This combination does not teach or suggest the feature of the independent claims of the present invention, namely that an insulating layer comprising DLC is formed over an insulating layer comprising organic resin.

As noted in previous responses, the hard carbon film of Kondo is provided as a part of the switching device. Why would a skilled artisan remove the insulating layer 52 of Tang, and then choose to replace it by picking and choosing only the DLC insulating film of the Kondo MIM device? Even assuming motivation could be found, the Official Action has not given any indication that one with ordinary skill in the art at the time of

the invention would have had a reasonable expectation of success when combining Tang and Kondo.

The previous Official Action further asserts that it would have been obvious to use an organic resin for the insulating layer because "use of one conventional material over another merely depends on the desire of the manufacturer and/or the availability and practicality of the material for the chosen manufacturing process" (page 3, Paper No. 22). The Applicant traversed this assertion in the Amendment filed December 12, 2002. The Final Official Action has not addressed this point. In response, the Applicant again respectfully traverses this assertion. The Applicants respectfully submit that an insulating layer comprising DLC formed over an insulating layer comprising organic resin in combination with the other features of the independent claims is not conventional and would not have been known to one with ordinary skill in the art at the time of the invention.

In addition, claims 113 and 125 recite an insulating layer comprising silicon nitride. A silicon nitride layer formed over a thin film transistor is not disclosed in either Tang or Kondo, either alone or in combination. The Official Action again asserts that it would have been obvious to substitute the Tang silicon dioxide insulating film with silicon nitride film because "it is a common practice in the art" and "use of one conventional material over another merely depends on the desire of the manufacturer" (page 5, Paper No. 22). It appears that the Official Action relies on U.S. Patent No. 4,705,358 to Yamazaki et al. to support the rejection (page 3, Paper No. 25). However, it is unclear that the Yamazaki reference is officially of record with respect to the obviousness rejection of the claims. Further, it is unclear whether it would have been obvious to apply the teachings of Yamazaki to Tang and Kondo. The Applicants respectfully submit that use of a silicon nitride insulating film in combination with the other features of the independent claims is not conventional and would not have been known to one with ordinary skill in the art at the time of the invention.

In the present application, it is respectfully submitted that the prior art of record, alone or in combination, does not expressly or impliedly suggest the claimed invention and the Official Action has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the

teachings of the references. Accordingly, reconsideration and withdrawal of the rejection of claims 109-116, 121-128 and 133-140 under 35 U.S.C. § 103(a) is in order and respectfully requested.

Paragraph 9 of the Official Action rejects claims 109-132 under the doctrine of obviousness-type double patenting over claims 90-91 of U.S. Patent No. 6,115,090 to Yamazaki. In response to this rejection, a *Terminal Disclaimer* is submitted herewith. Upon filing of this *Terminal Disclaimer*, the claims of the present invention are now believed to be in condition for allowance. Reconsideration and withdrawal of the obviousness-type double patenting rejection are requested.

Paragraph 10 of the Official Action provisionally rejects claims 109-132 under the doctrine of obviousness-type double patenting over claim 8 of copending Application No. 09/295,397. In response, the Applicants respectfully request that the double patenting rejection be held in abeyance until an indication of allowable subject matter is made in either the present application or the copending application. At such time, the Applicants will respond to any remaining double patenting rejections.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,

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